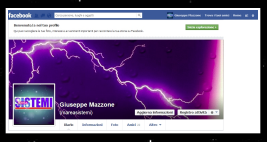


Electricity from the earth's atmosphere. An old forgotten idea?

Source: http://scienzaearte.blogspot.it/2011/03/energia-elettrica-dallatmosfera.html

Solar, wind, hydroelectric, geothermal, biogas. These are the main renewable and non-polluting energy sources. But a sure not to leave something out?
It is known that the Earth's atmosphere has a potential difference that increases with height. For non-professionals it i the atmosphere was a charged battery. This is evident during thunderstorms, when this charge finds its outlet in th frightening and fascinating phenomena that are lightning. Many have imagined and studied methods for storing ligh energy, but this presents numerous problems:

1) it is not known in advance where a lightning will strike or in any case where a thunderstorm will take place; 2) ev lightning strike could be intercepted, for example by attracting it with a kind of lightning rod, it would be extreme difficult to store all its energy, since the discharge is very short; 3) moreover, most of the lightning energy dissipate light, heat and sound. In short, a "power plant" based on the interception of lightning would not be very profitable. **W less known, however, is that the atmosphere has this charge even when there is not even a cloud in the sky**

. The idea of deriving electricity directly from the earth's atmosphere dates back more than a century ago. To my knowledge - I urge readers to post comments if they are aware of other studies - the latest and most promising study field was carried out by the Estonian engineer and inventor **Hermann Plauson** . His studies took place in the 1920 almost a century ago. Is it possible that since then there has been no progress in this field? Why did the idea of extra electricity from the Earth's atmosphere go into oblivion, even though it seemed promising at the time of Plauson's stu

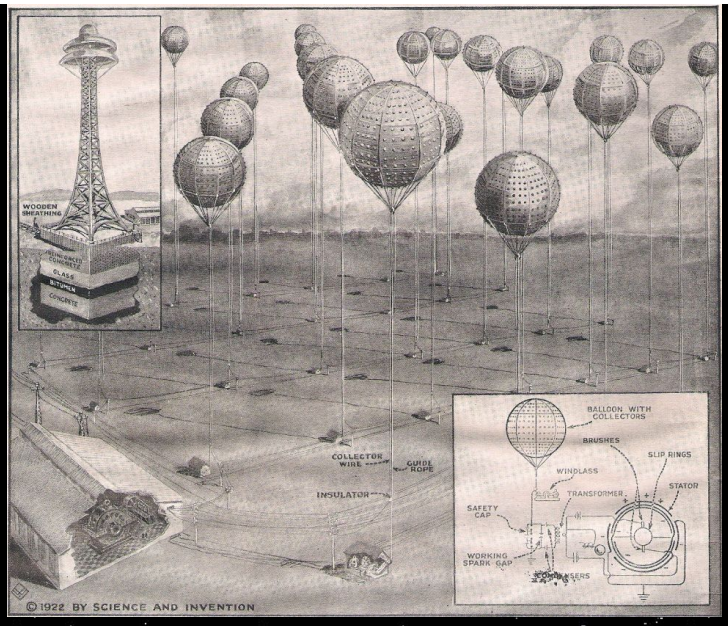


Image taken from the magazine "Science and Invention" (1922), where we describe the invention of Hermann Plau
Let's see before giving a brief description of the method used by Plauson. An electricity collector, consisting for exan
a balloon filled with helium, was raised to an altitude of several hundred meters, connected to the ground by a condu
cable. The balloon itself was made of conductive material and was covered with innumerable little needles, capabl
collecting atmospheric electricity through a phenomenon called field effect emission . High-voltage electricity w
conveyed to the ground by the conductor cable, and was converted into low-voltage electricity to be used by comm
electric users.

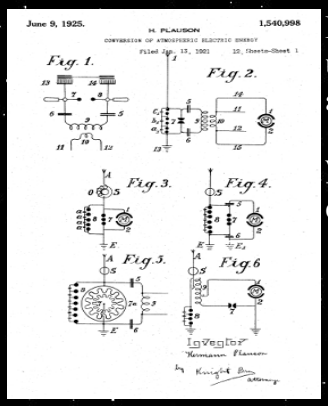
In the description of his invention , Plauson reports that he managed to get about 3.4 kW (kilowatt) in a "pilot" exper
using two of these balloons.
Returning to the first question: why such a promising technology was abandoned?
Several hypotheses can be made. The Plauson method provided - even if it was not bound - the use of radioactive ma
(radio and / or polonium), whose ionizing properties were used as a "catalyst" to increase the current inflow. It is ob
that today any alternative energy proposal based on the use of radioactive material would not be frowned upon,
considering the possible environmental impact that could result from accidental contamination. As a note
it is interesting *to mention* that until the eighties a type of lightning conductor covered with a thin layer of americiu
radioactive material), similar in concept to the Plauson collectors, was used in Italy: it is useless to say that these de
are currently become outlaws.
Another possible reason why the idea was abandoned may be related to the fact that the energy needs in the 20s wer
lower than today's ones: a typical "central" "at Plauson", composed of 100 separate balls the one from the other of a
100 meters (so 1 km of side), would have generated some hundreds of kilowatt: a power of all respect for those time
that pales a bit 'when compared to the energy produced by a single wind generator - about 1 Megawatt.
This reason, however, would justify only part of the abandonment of research in this field, since a system that allows
obtain even a few kilowatts using just a couple of balloons could be competitive - compared to wind energy - in area
windy and not served by the electricity network. **Let's** add at this point **an advantage that this system would hav
wind and solar: uninterrupted production 24 hours a day and 365 days a year** .
Apparently, therefore, the only major obstacle would seem to be represented by the use of radioactive material. And
we are meeting the recent technological development. In recent years, in fact, techniques have been developed to ol
nanomaterials that are very efficient from the point of view of field effect emission: in practice they are super-pins
could function as effective collectors of atmospheric electricity without resorting to use of radioactive material.
Some might argue, and rightly so, "But are these particular nanomaterials safe from the health point of view?"
Unfortunately, since these are new technologies, it is still difficult to estimate the impact in this sense, but some studi
under way. If, as is hoped, these materials will be considered harmless to health, then it can not be excluded that t
research on electric energy obtained directly from the earth's atmosphere will find a new vigor and this source not
exploited can go alongside the best known renewable and non-polluting sources.
As a final note it should be added that even without using radioactive material and the nanomaterials mentioned abo

system similar to that of Plauson could provide modest but useful quantities of electricity, finding application especia
the areas of developing countries far from large centers inhabited.

Hermann PLAUSON

Conversion of Atmospheric Electricity

Source: Source: rexresearch.com



**In 1920 the German engineer Hermann Plauson published a text "Gew
und Verwertung der Atmospharischen Elektrizitat" (Acquisition and
atmospheric electricity).**

**Where he concluded that atmospheric electricity could be capture
exploited by men.**

In this regard he wrote:

**"Humanity will be free from worry about the threat of freezing death, knowing that in a pred
time it will be possible to exploit the natural resources to the fullest ... Humanity will no longer
suffer from the cold, because mother nature will give her abundant gift power."**

**Plauson designed a series of helium-filled balloons, able to collect atmospheric electricity in t
through the use of thermionic rectifiers, Leida bottle condensers and induction coils, his idea
supply energy to whole Germany.**

Biography (Wikipedia)

Meridian International Research: Atmospheric Electricity Research

***Science & Invention* (Feb. 1922) : "Power from the Air" (I)**

***Science & Invention* (March 1922) : "Power from the Air" (II)**

Plauson's Patents (List)

H. Plauson: USP # 1,540,998 - Conversion of Atmospheric Electricity

H. Plauson: British Patent # 157,262 - Improvements in Electric Motors

H. Plauson: British Patent # 157,263 - Process & Apparatus for Converting Static Atmospheric Electrical Energy into Dynamic Electrical Energ

***Science & Invention* (June 1928) - "Harnessing Nature's Electricity"**

H. Plauson: British Patent # 299735 - Rapidly Moving Electron Process for Producing [PDF]

H. Plauson: *Gewinnung und Verwertung der Atmosphatischen Elecktrizitat* (1922) [PDF]

---

http://en.wikipedia.org/wiki/Hermann_Plauson

Biography

Hermann Plauson was an Estonian engineer and inventor. Plauson investigated the production of energy and power via atmospheric electricity.

Plauson was the director of the Fischer-Tropsch "Otto Traun Research Laboratories" in Hamburg, Germany during the Weimar Republic of the 1920s. Nikola Tesla's idea for connecting machinery to the "wheelwork of nature". Plauson's US Patent # 1,540,998 methods of converting alternating radian electricity into rectified continuous current pulses. He developed the Plauson's converter, an electrostatic generator. In 1920, Plauson published a bo *Production and Utilization of the Atmospheric Electricity* " (*Gr., Gewinnung und Verwertung der Atmospharischen Elektrizitat*). A copy of this boo British Library.

It is believed to be Gertrud Plauson (the exact relationship is unknown.

"Power from the Air". *Science and Invention* , Feb. 1922, no. 10. Vol IX, Whole No. 106. New York. (nuenergy.org)
"Power from the Air". *Science and Invention* , March 1922.

Science and Invention, **Vol. IX (106) # 10 (February 1922)**

Power from the Air (I)

by

Hugo Gernsback

In the war there was developed in Germany in the new art --- or science --- that bids fair to revolutionize our present means of obtaining power.

This art, which is as new now as wireless, is 25 years ago, will be attainments during the next 25 years that may appear fantastic today. Hermann Plauso of the new science, has devoted years of labor to his researches and he has now been using small power plants, generating electricity direct from the a night, without interruption at practically no cost, once the plant is constructed.
We have occasion, to describe the system, roughly, from cabled dispatches, but complete information is available now. The amount of electrical power in our atmosphere is astounding. Herr Plauson found in his experiments a single balloon sent to a height of 300 yards gave a constant current at 400 amperes, or in 24 hours over 17-1 / 4 kilowatts! By using two balloons in connection with a special condenser battery, the power obtained was 81-1 / 2 24 hours. The actual current delivered was 6.8 amperes at 500 volts.

The best balloons used by the inventor are made of thin aluminum leaf. No fabric was used. A simple internal system of ribs, stays and wires, gives the b certain amount of elasticity. The balloon, when made airtight, is filled with hydrogen or better, with helium. It will then stay aloft for weeks at a time surface is made of extremely sharp pins, made sharp electrolytically. Ordinary pins did not test good current collectors, as they lacked extreme sharpnes themselves were made from amalgamated zinc, containing a radium preparation, in order to ionize the air. It was also found that by the outer surface of with zinc-amalgam. Even better results were obtained with polonium amalgam.

One hundred of these captive balloons, separated one hundred yards from each other, will give a steady yield of 200 horsepower. This is the minimum horsepower, due to the higher electrification of the atmosphere.

We need to go into the technic of how the problem is now solved by Herr Plauson. By using batteries of condensers, high tension transformers, etc., the be changed to any form desires. Such as lighting, running motors, charging storage batteries, etc.

Plauson also invented a sort of electrostatic rotary transformer which gives alternating current without the use of condensers and transformers. Indeed, i very great, as it is actually sucks the current from the collector balloons. There is no doubt that this invention will become a universal use all over the wo see the land with captive balloons, especially in the country. Indeed, the time is not all that is coming from the atmosphere. It may be the least form of po as the cheapest form of power known today. Not only that, but not as devastating thunder storms occur

---

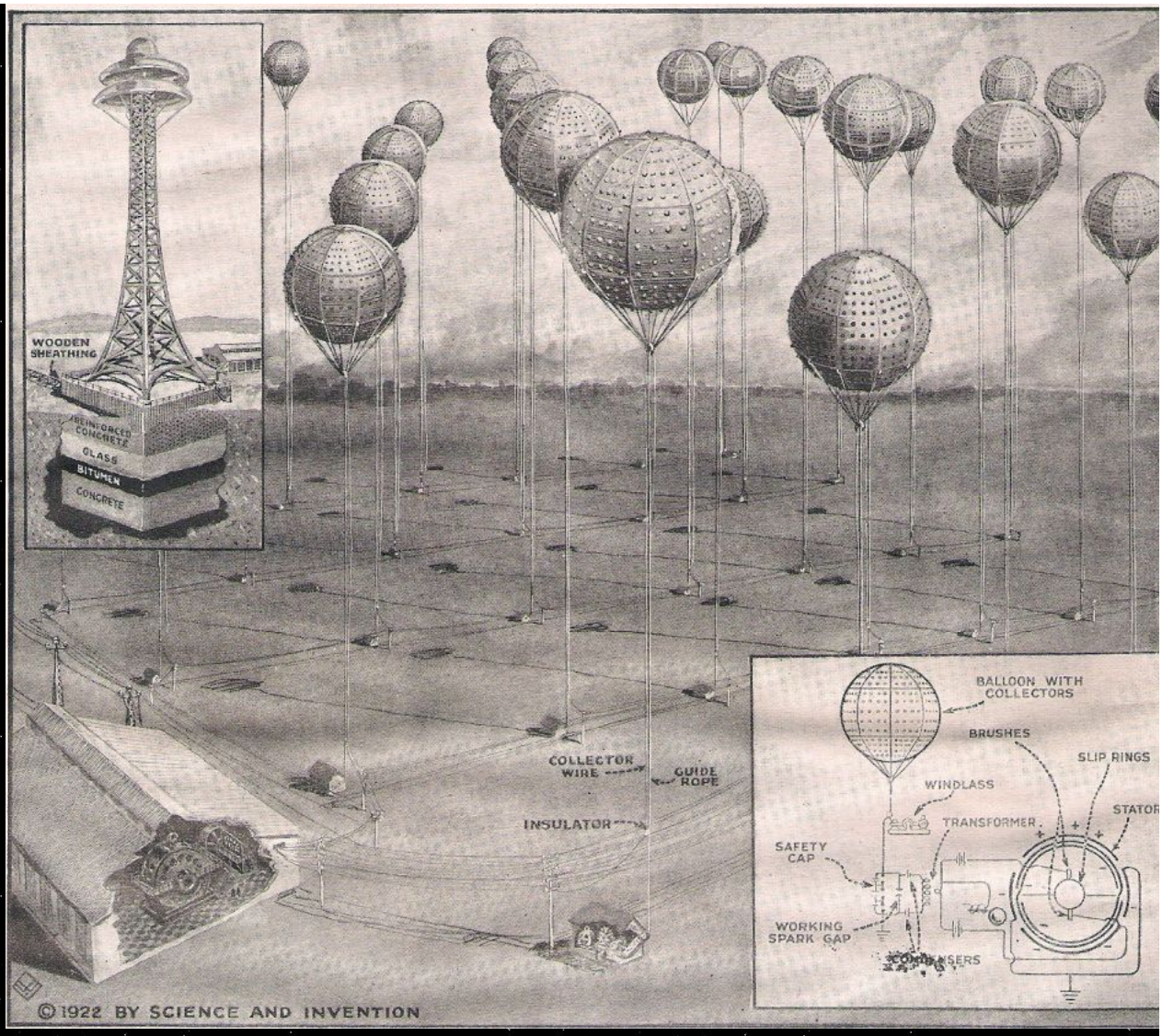
Science & Invention **(March 1922), page 1006, 1007**

Power from the Air (II)

by

Hugo Gernsback

[For many years electrical engineers have been able to use the free electrical energy ever present in the atmosphere, but they were not the elevated co endanger the lives of the experimenters, or else destroy the apparatus connected with it. A German engineer has, however, devised the somewhat elabor here shown in the brief, and he has succeeded, at least so his report states, in safely extracting several kilowatts of electrical power from the atmos metallic surfaced balloons, elevated to a height of only 1000 feet.]



We have been treated with the extraction of electrical energy from the atmosphere. The difference of the electric potential in different parts of the atmo the difference between the upper air and the earth. The power would take the form of high potential. It has long appeared rather than to conservative e such a source of power should really be available. It is not the same, but when the lightning flash is flashing, it is likely to be very small. seriously, as th now being seriously investigated. A German scientist, Hermann Plauson,

We will first speak of the methods used for collecting electricity from the upper air. The author cites several German patents. One of them shows the u balloon. The balloon is shown floating in the air, kite fashion, and from a great net or aerial for the collection of electricity. The conductor from the ae the ground station; quite an elaborate description of the net-work which the patentee proposes to have covered with needle points. A windlass takes in cable for the balloon, and the patentee claims that will send you to 225,000 volts to draw upon. He then speaks or a battery of 20,000 cells in series, wh up to 40,000 to 50,000 volts in the charging. This certainly provides for a large large fall of potential.

But our author discards this idea and first suggest something more permanent. He proposes the erection of towers to the height of 1,000 feet. At the sur his collecting aerial. The appliance consists of a number of copper tubes; to the top of the tubes, with the aim of collecting net-work covering the tops o "One of his apprehensions" should be his "trouble trouble", he would like to propose himself to "Siamese pagoda". He also compares the form of the pro great petticoat insulator. His is insulated from the earth. He, therefore describes a complicated foundation for his structure. A foundation of simple concr subject, it is a layer of cast glass, three to ten feet thick, and then comes to a reinforced concrete foundation. Sides of the ground, this foundation must least seven feet The author's idea is based on the number of these towers connected by a horizontal cable. three to ten feet thick, and then to a reinforc foundation, to which the metallic foot of the tower is to be anchored. Sides of the ground, this foundation must be raised at least seven feet The auth based on the number of these towers connected by a horizontal cable. three to ten feet thick, and then to a reinforced concrete foundation, to which the m of the tower is to be anchored. Sides of the ground, this foundation must be raised at least seven feet The author's idea is based on the number of th connected by a horizontal cable.

The author strongly advocates balloons as collectors of the electric power of the air. These he depicts covered with spots. These spots indicate areas to be coated and prepared to collect potential from the atmosphere.

In the first place he described the balloon as "made of thin metallic leaf" supported by internal ribs. Steel wires silver-plated, copper-plated, or alumin run from the balloon to the pendant or junction ring. To this ring the cable is attached to the surface of the earth. 300 feet to three miles.

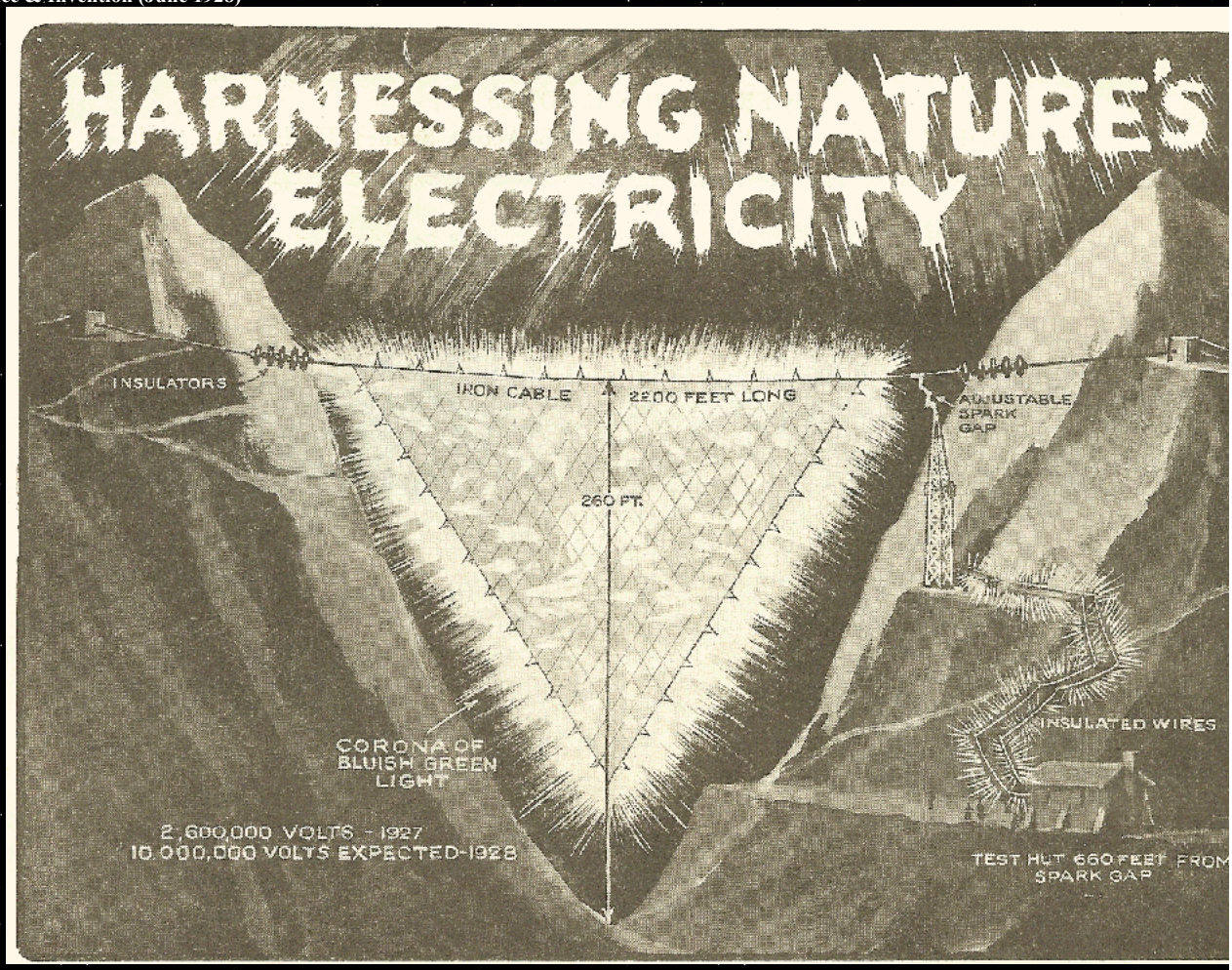
The coating of the spots is to be of the thinnest amalgam, of mercury and gold, or zinc, or even polonium, perhaps only 1/2500 inch thick. Numberless m To prepare the needle-like wires, they are collected into bundles and are treated electrolytically in a bath, so as to be dissolved into part. This gives a shar a roughened surface. The points may be of copper, steel, or some hard metallic alloy. After this corrosion. As it may be termed, the wires are plated w other of the so-called noble metals. It is advised that polonium or radium salts be added to the plating bath.

Dr Plauson devotes This is a rotary motor including a stator and rotor and its peculiarity is that it contains no coils, develops no electromagnetic fie speaking, but works by static excitation. One typical arrangement is shown in our illustration. The stator plates and rotor plates are concentric with representing segments of cylinders. The alternation of negative and positive charged plates produces the rotation. In the connection there is included a s gap to take care of dangerous potentials. Inductances and capacities are also used and indicated. The plates heated, owing to the Foucalt currents, are subdividing the stator and rotor plates, are described by the author.

The whole subject is quite captivating, and it really seems as if the use of the air may be in sight. It would seem to be possible to carry out experim direction by means of the Eiffel Tower.

And now our author gives us some practical details. He says that he is doing it with a radium preparation as an ionizer. The surface of the balloon wa over with zinc amalgam. It was sent to a height of 300 meters, early 1,000 feet, and was held by a copper-plated steel wire. A constant current of 1.8 am average of 400 volts potential difference was obtained. This gave nearly three-quarters of a kilowatt, or close to one horsepower. The collector of the ball to be a tension of 42,000 volts. A passing a second balloon with an antenna. Antenna, and the antenna connection with the 500 volts mean tension. The k the use of these two balloons.

Science & Invention (June 1928)



Science and Invention for June, 1928

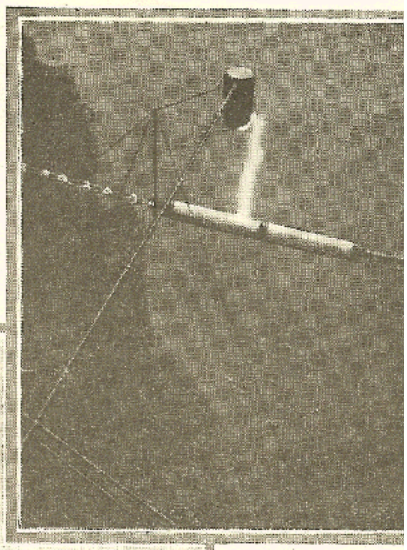
Remarkable European Experiments with Atmospheric Electrical Discharges with Potentials as High as 3,000,000 Volts

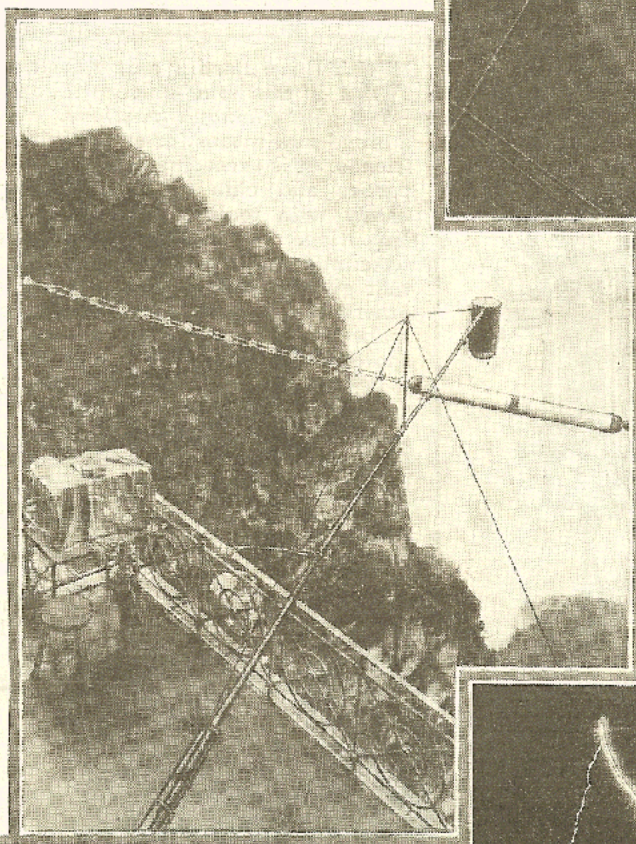
By HENRY TOWNSEND

elevation of 350 ft., and these students of natural electrical phenomena have found a very desirable location in the Alps, where they can suspend between one mountain and an adjacent one, a strong iron cable having a length of about 2,000 ft. This cable is about 250 feet above the intervening valley, and from it these daring engineers have suspended a coarsely woven wire net, which serves as an electrical capacity to gather the electricity from the atmosphere. As shown in the pictures, the wire net is supplied with numerous sharp points to aid in collecting the current from the air.

As the accompanying photographs of the actual apparatus and wire cable used last year clearly show, an adjustable spark gap of considerable length is provided. By adjusting this spark gap to various lengths, it is possible to judge the voltage of the discharge which leaps the gap at any moment. Mr. F. W. Peek, Jr., the well-known American worker in the realm of high voltage measurements, together with other engineers, have provided tabulated data and curves for various lengths of both needle and sphere type spark gaps. As one of the accompanying diagrams shows, it is a simple matter to calculate the voltage when a certain length of gap is used. The engineer first checks the length of the gap on the chart; he then follows a line horizontally from the gap length, to where it intersects with the angular line on the chart; and from the point of intersection he looks in a visual line downward to a place where the voltage is given. For needle spark gap measurements, the characteristic curve on the chart is practically a straight line, while for sphere gaps the characteristic curve on the voltage versus gap length, is a curved line. Those interested in high voltage measurements by means of the spark gap method can find the voltage-gap tables and charts in the *Standardization Rules* of the American Institute of Electrical Engineers. According to Mr. Peek's researches, the voltage per foot of atmospheric electrical discharges is about 100,000, while in laboratory measurements with A.C., transformer high potential discharges, the average voltage per foot of spark was found to be about 150,000 volts. The voltage of a lightning flash may

(*Continued on page* 156)



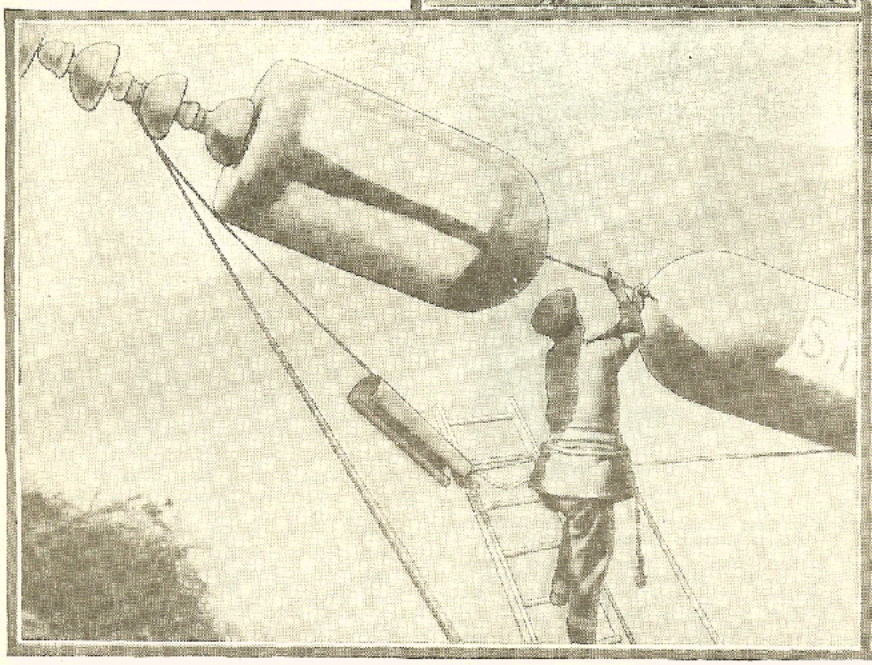


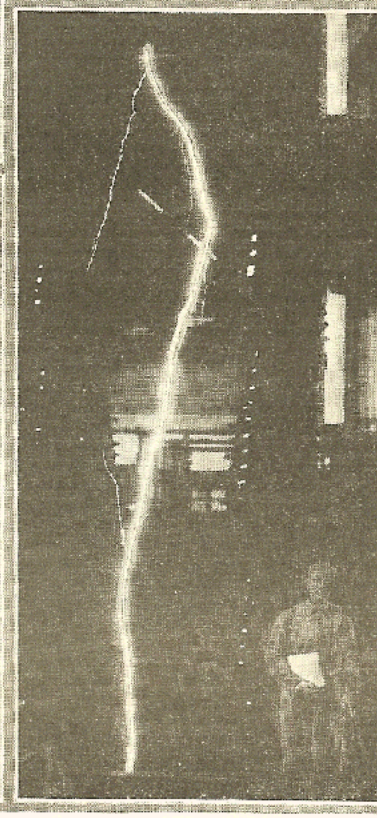
Actual photo at shows 13 ft., he spark obtained the collecting net the Alps by the man scientists. voltage is about 2, 000. The spark occu once per second fo minutes.

Photo, left, shows adjustable spark used in the Alps. tice the heavy e trode on the end of adjustable arm to wh the spark jumps

Below we see 3,000, volt artificial lightn stroke produced in E. Laboratory at Pi field, Mass. Note n

Actual photograph of the experimental "kite" used by the German experimenters in the Alps Mountains, for the purpose of accumulating high potential electrical discharges from the atmosphere. Note the size of the insulators.

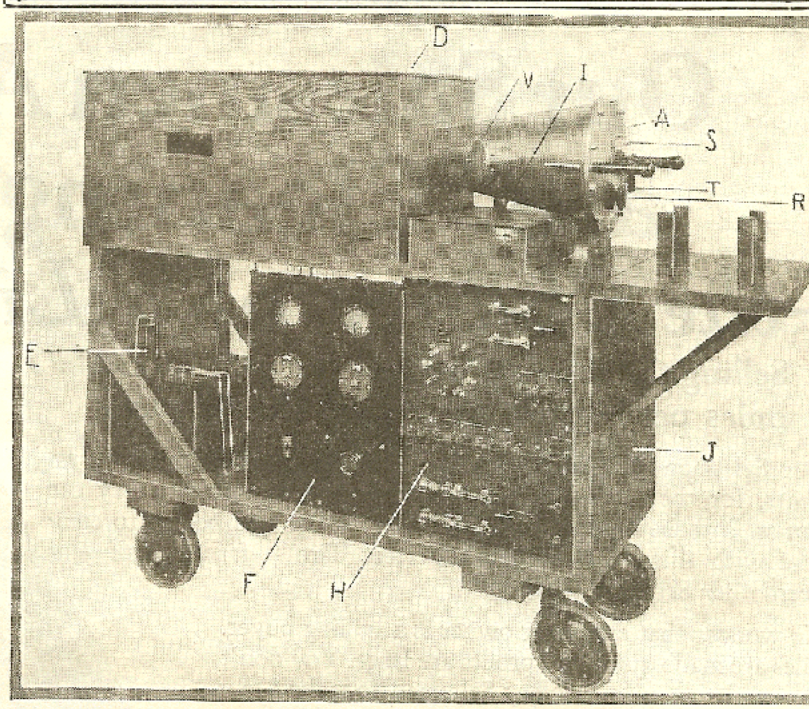




HARNESSING NATURE'S ELECTRICITY

By HENRY TOWNSEND

(*Continued from page* 111)



Remarkable cathode ray oscillograph used by Mr. F. W. Peek, Jr., in causing lightning to write its autograph with a pencil of electrons on a photographic film.

easily be 100,000,000 volts, as Mr. Peek has pointed out in one of his scientific papers.

WHY THE EXPERIMENTS ARE BEING MADE

ONE of the main reasons why these dangerous experiments are being carried on by the three young German scientists, whose names we have already learned, is because science believes that with a sufficiently high voltage, it will be possible for man to disintegrate the atom, and in this way make available a tremendous source of power as yet untapped. These experts have calculated that they will be able to obtain electrical energy in sufficient quantity from one of these powerful atmospheric discharges, to equal the Alpha rays obtained from 220 pounds of radium. As we have mentioned before, these experiments are of course fraught with great danger, and for that reason the experimenters seek refuge in a special lightning-proof hut, which is located about 600 ft., from the spark gap. When electrical storms are in the vicinity, it is especially important that the scientists keep within their protected fortress, for otherwise they would very probably be killed by a stray electrical discharge.

One of the peculiar things about this whole line of experiment is that the average layman does not realize perhaps, that there is a high electrical stress in the atmosphere on clear days, as well as when thunder storms are overhead. This fact has been known for a hundred years and more, and many years ago measurements of the various electrical potentials at increasing altitudes, were observed and measured by scientific investigators. There are a number of different ways in which these high electrical potentials found in the atmosphere can be measured; one of these methods involves the use of a calibrated spark gap. In this case the gap is set to a predetermined length, and when a discharge jumps this gap, the engineers know of course from previous experience and measurements, just what voltage is present. Another method of measuring extra high potentials, such as here countered, requires the use of a static v meter, which involves the use of a station and of a movable or rotary set of m plates, forming a condenser, to which indicating needle is attached. For volta above 2,000, static voltmeters have been u in a great many American central stati and they have many desirable and us characteristics. Of course as the volt to be measured increases, the space betw the quadrant shaped stationary and mov plates is increased and vice versa. electrostatic field from voltages below 2 is not sufficient to warrant the use o static voltmeter. Another method of m uring high potentials involves the use the so-called vacuum tube voltmeter.

The general characteristics of the mospheric electrical discharges, inclu lightning, have been measured and reco by one of the newest scientific instrum known as the cathode ray oscillograph. means of this quite remarkable, high v age scientific apparatus. Mr. Peek, one the well-known General Electric Comp staff of research engineers, has made s very interesting and remarkable discove concerning the nature of natural electr discharges, particularly of lightning charges. Many people will probably wo why Mr. Peek and some of his colleag in the engineering profession, including three daring German students, Mes Brasch, Lange and Urban, play with s dangerous electrical discharges, and they are at all interested in them. We plained previously why the German sav are intent on finding out all they can al these tremendous voltages obtained f the atmosphere, while Mr. Peek, we say, also has a very practical reason carrying on experiments with these de dealing bolts of Thor. Mr. Peek has b for many years intent on finding out w causes the huge insulators on long dista high potential transmission lines to b down when electrical storms break loose these regions.